INTRODUCTION

• Phase I in launching a comprehensive Maternal Fetal Medicine (MFM) program at our institution involved opening an obstetrics (OB) unit containing 2 LDRP beds, 1 cesarean section (CS) operating room, and an adjacent neonatal stabilization area.

• Traditional advance planning methods are not always capable of anticipating workflow disruptions and identifying latent safety hazards that can impact patient care in new facilities.

• We hypothesized that simulating high-stakes clinical scenarios on the new OB unit would expose operational deficiencies, allowing implementation of process improvements before the unit opens for patient care.

OBJECTIVES

• To describe how we used in situ simulations to prospectively identify potential patient safety hazards at a 318-bed, university affiliated children's hospital.

• To describe how in situ simulations identified hazards that can impact patient care in new OB units.

• To describe how our project can serve as a guide for other children's hospitals, regarding care processes likely to require significant focus and possible modification in order to accommodate an MFM program.

METHODS

• This prospective, observational study was conducted within a newly constructed OB unit at a 318-bed, university affiliated children's hospital.

• We developed 3 "full mission", critical event scenarios for an OB mannequin simulator.

  • Scenario A: Postpartum hemorrhage in the LDRP setting leading to pulseless arrest

  • Scenario B: Amniotic fluid embolus in the OR setting requiring back transport to ICU

  • Scenario C: Postpartum hemorrhage in the OR setting requiring hysterectomy

  • Scenario C began with a standardized patient (SP) arriving at the hospital for scheduled CS and then experiencing admission, electronic charting/order entry, labwork, consent, and transport to OR. The scenario continued in the OR using the mannequin simulator while the SP completed an evaluation of her experience.

  • Each maternal simulation involved a unique combination of scheduled participants including physicians, nurses, and allied providers from OB, Neonatology, and OB Anesthesiology.

  • Scheduled participants were supplemented by others that became involved in the scenarios as part of a responding clinical or ancillary service.

  • During each simulation, content experts completed equipment checklists. During the SP portion of Scenario C, a designated confederate completed an admission process checklist.

  • Each simulation was videotaped and followed by a facilitated debriefing to identify potential patient safety hazards. Participants recorded perceived hazards on confidential forms that were submitted to the project investigators.

RESULTS

• The simulations involved 147 scheduled participants.

  • Each simulation (including debriefing) took 2.5 - 3 hours to complete.

  • Day 1 simulations identified 149 unique hazards that were addressed during the course of the project.

  • Table 1 summarizes critical issues that were identified during the simulations and their administrative outcomes.

  • Table 2 summaries SP feedback. SPs consistently noted that OB staff's unfamiliarity with hospital computer systems negatively impacted their perceptions of the patient care experience.

  • Iterative process revisions between simulation days 1 and 3 decreased the elapsed time between activating the Massive Transfusion Protocol and arrival of blood to the OR and LDRP by 76% and 23%, respectively.

CONCLUSIONS

• In situ simulation can be used to prospectively identify latent hazards on a new children's hospital-based OB unit. Process improvements can then be developed and iteratively tested before the unit opens for patient care.

• Incorporating SPs allows a more comprehensive evaluation of a unit's operational readiness, by providing insights about the patient care experience.

• Our project can serve as a guide for other children's hospitals, regarding care processes likely to require significant focus and possible modification in order to accommodate an MFM program.

ACKNOWLEDGMENTS

We thank the Colorado Institute for Maternal & Fetal Health for their support of this project. We also gratefully acknowledge Mr. Phill Wortham's technical assistance.

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